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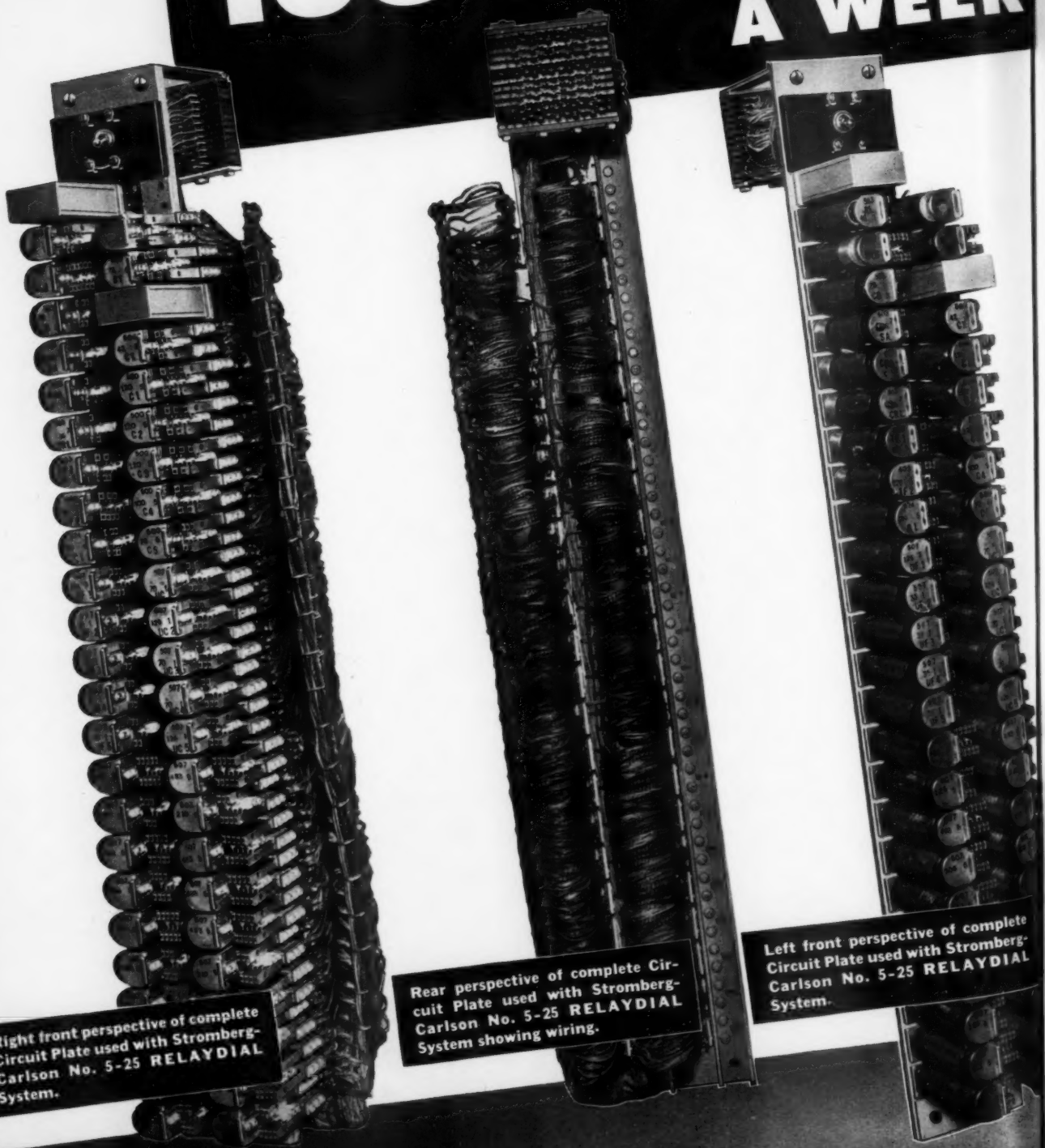
telephony

The Journal of the Telephone Industry

WORKS 168 HOURS A WEEK



Right front perspective of complete Circuit Plate used with Stromberg-Carlson No. 5-25 RELAYDIAL System.

Rear perspective of complete Circuit Plate used with Stromberg-Carlson No. 5-25 RELAYDIAL System showing wiring.

Left front perspective of complete Circuit Plate used with Stromberg-Carlson No. 5-25 RELAYDIAL System.

Nicopress repair sleeves may be quickly applied with the same tool used in making regular Nicopress line splices.

TELEPHONY

The Journal of the Telephone Industry

MAY 19, 1945

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CONTROLS

The control functions of the McBerty System are generally comparable to earlier types of automatic telephone equipment. These call for such relay properties as normal action, fast action, delayed action, and the variables thereof. Contact arrangements of various types must be available to meet the circuit requirements.

One form of our new relay structure has been designed for these general purposes. Coils of various characteristics can be mounted as needed. Delayed action can be accomplished by the selective use of metallic sleeves with overlay coils.

In this unit we have available the means for providing various related relay actions in close proximity and within a minimum of space.

The NORTH ELECTRIC MFG. COMPANY
Galion • Ohio

ABC of the Telephone

By FRANK E. LEE

PART X. The Generator Theory. The ninth article in this series appeared in the April 14 issue, page 13.

AS A BASIC function of the telephone, signaling should be considered as important as the transmission and receiving of sound. When the proper sounding or signaling device is incorporated in or associated with the telephone, there is little delay in answering calls. To fulfill this need, bells or ringers are a vital part of every telephone. If the standard bells are inadequate, in extreme cases it is possible to add one or more of the following special signaling devices to the circuit: A louder bell; low frequency gongs (exceptionally effective in hard of hearing cases); loud ringing bells; power bells; klaxon horns; sirens, and visual signals.

The signaling circuit is connected in parallel with the telephone set either across the line, or either side of the line to ground. In any event, a condenser generally is incorporated in the signaling circuit to open that portion of the circuit to the direct current on the line. For this reason, the signaling equipment never gives false signals to the operator.

A previous installment described how a condenser opens a circuit to direct current while permitting alternating current, or a current with alternating characteristics, to flow in the circuit. To fulfill the twofold function of the line circuit, alternating or pulsating current is used for signaling purposes. This installment covers the source of energy—*the generator theory.*

Several methods of creating or producing electric energy, including thermal or heat, friction and chemical, already have been outlined. A fourth method is known as generation by magnet-conductor movement. In the power field this is the most important. Portions of the theory of magnet-conductor movement current generation have been covered in installments on magnetism, receivers and induction coils. To correlate all of these ideas, the basic theory of current generation will be considered at this time.

An electric potential difference is produced in a conductor in one of two ways, namely:

(1) Moving a conductor through the magnetic field produced by permanent or electro-magnets.

(2) Moving permanent or electro-magnets around a stationary conductor in such a way that the conductor cuts through the magnetic lines of force.

In the magnetic field, the lines of force are stretched from pole to pole

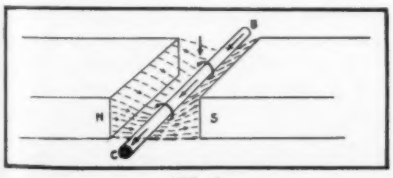


FIG. 1

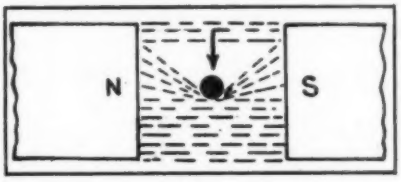


FIG. 2

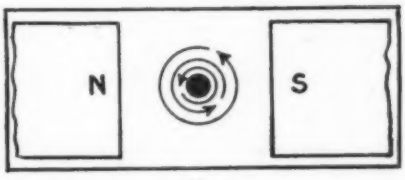


FIG. 3

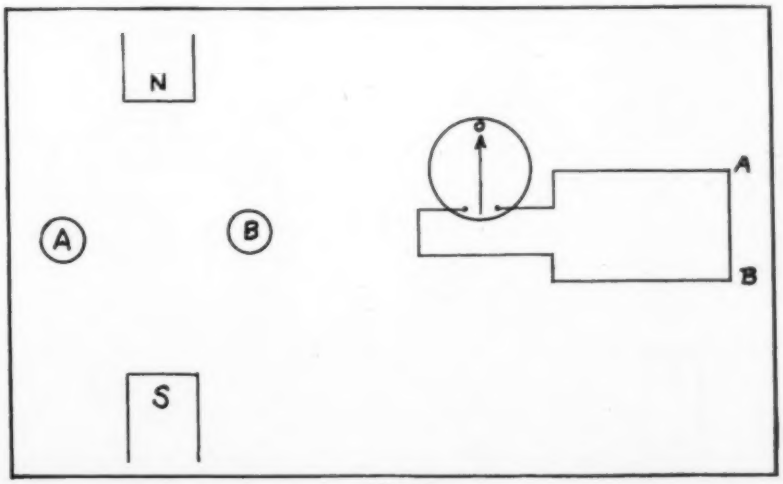


FIG. 4

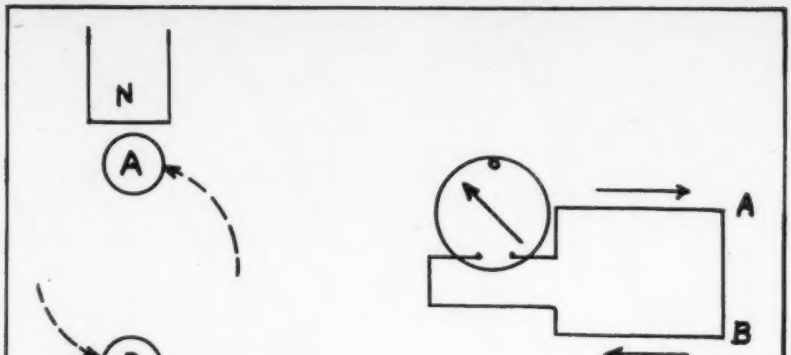


FIG. 5

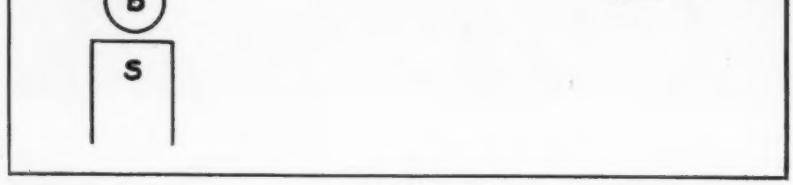


FIG. 6

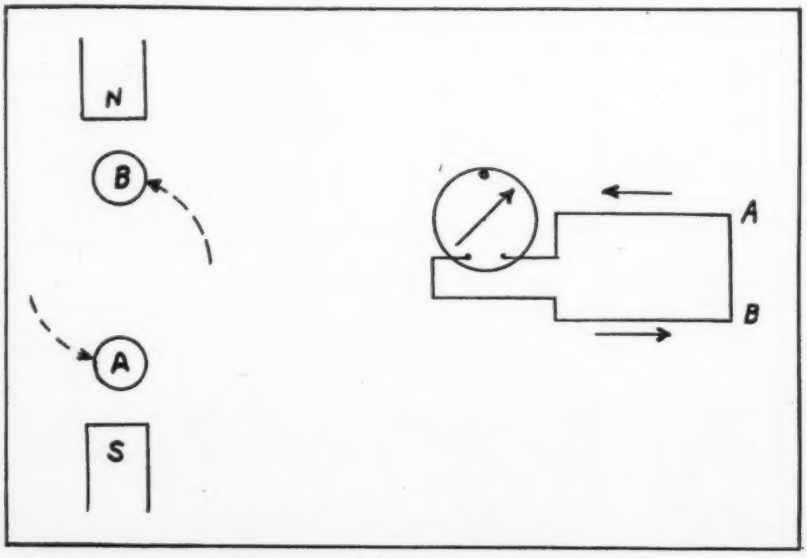


FIG. 7

of the maget, as shown in *Fig. 1.* When a conductor (wire) moves through this field, it "cuts" through these lines of force. As the wire advances, it pushes the lines of force out of their regular positions. After the wire has passed through them, they return to their normal positions, as in *Fig. 2.* As the lines of force are bent and crowded ahead of the conductor, the magnetic field becomes of greater intensity on the forward side of the conductor. A magnetic "whirl" is created around the conductor by the distortion of the magnetic field, *Fig. 3.* However, this local magnetic field is in the direction that is produced by current flowing in the wire. Accordingly, we can say the conductor must move so as to *cut lines of magnetic force* in order to have voltage induced in it.

When the conductor is moved *down,* as in *Fig. 1,* the induced current in it is from B to C. But if the wire is moved *up* through the lines of force, the induced current is from C to B. Also, if the field is reversed without changing the direction of motion of the wire conductor, the current reverses. The direction of the induced voltage depends upon two things:

(1) The direction of the motion of the wire conductor.

(2) The direction of the flux or magnetic lines of force.

The induced voltage is increased by moving the wire conductor faster across the magnetic field, by making the magnetic field stronger or by using more turns of wire. That is, the amount of induced voltage depends on three factors—speed, magnetic field and number of turns.

In *Fig. 4* is shown the poles of a magnet producing a magnetic field and a loop of wire, which can be revolved in the magnetic field created by the permanent magnet N and S. In this figure and the following similar figures, the loop of wire will remain stationary, with the direction arrows indicating the direction of current flow. In actual use, the loop would be revolving between the pole pieces. When the loop is in the position shown, the wires are not cutting any lines of force and as a result no current flows in the loop.

As the loop is revolved, *Fig. 5,* section A cuts through the magnetic field in one direction to cause current to flow in this section as indicated. At the same time, section B is cutting into the magnetic field in the opposite direction and, as indicated, current is flowing in section B in the opposite direction from the current flowing in section A. When the current is carried to the external circuit, it flows in the direction to make the needle of the meter

move to the right. The meter needle will indicate an increasing flow of current in the circuit while sections A and B are revolving to a vertical line drawn between the two pole pieces, since the number of magnetic lines cut per second increases as the sections move into the strongest part of the field.

When the loop is turned further towards the position shown in *Fig. 6*, the needle of the meter gradually will return to zero. In *Fig. 5* each section cut through an ever increasing number of lines of magnetic force, whereas in *Fig. 6* the number was decreasing.

In *Fig. 7*, continuing the revolution of the loop in the same direction, section A is cutting into the magnetic field in a direction *opposite* to that in *Fig. 5*. The direction arrow on the loop and in the external circuit indicates a current flow in the opposite direction. The same is true of section B. The meter needle indicates that the amount of current flowing in the circuit was the same as in *Fig. 5*. However, this time the meter needle moved to the *left* of zero.

In *Fig. 8*, the loop has been turned to its original position and the value of the current has returned to zero. Therefore, it is seen that by turning a loop of wire between two opposite magnetic poles, a current is caused to flow first in one direction and then in the other. A device of this sort is a simple kind of alternating current generator. The loop is called the *armature* and the space between the magnetic poles is known as the *magnetic field.*

Fig. 9 illustrates the magnitude and direction of current flow in a wire as it makes one complete revolution through the magnetic field of the generator.

The electromotive force (EMF) created by a generator is governed by the following principles:

(1) The EMF is proportional to the *number of turns* of wire which pass the poles at the same time.

(2) The EMF is proportional to the *strength* of the magnetic field.

(3) The EMF is proportional to the speed at which the armature is turned.

(4) If an iron core is placed inside the armature loop, the voltage produced will be increased.

To enable the EMF produced by a generator to be applied to an external circuit, each end of the armature loop is connected to a solid round copper ring, called a slip ring, *Fig. 10*. The current is picked up from these rings by carbon brushes as shown.

If a single split commutator is used, as illustrated in *Fig. 11*, the current flow through the brushes will be in the same direction. If an armature with many loops is connected to a commutator with a corresponding number of segments, the current flow will approach a very even line of flow. The generator arranged in this manner causes a current to flow in one direction and is known as a direct current generator.

Fig. 12 illustrates the use of one slip ring connected to one section of a split commutator ring and one end of the

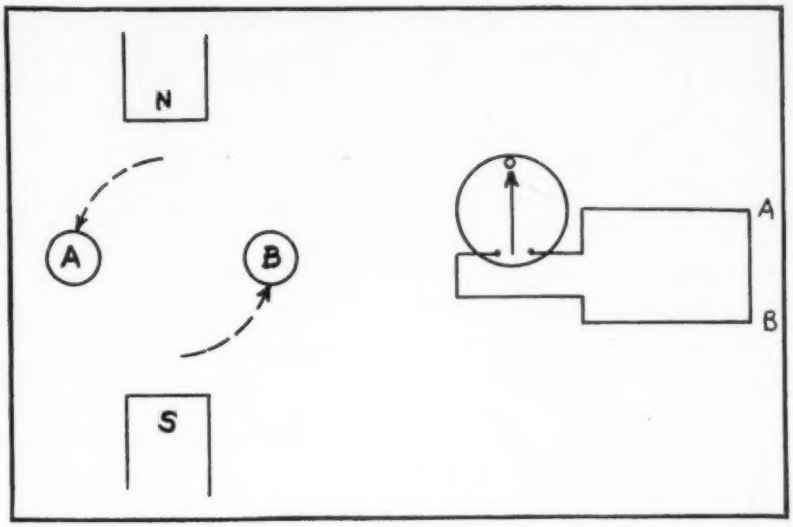


FIG. 8

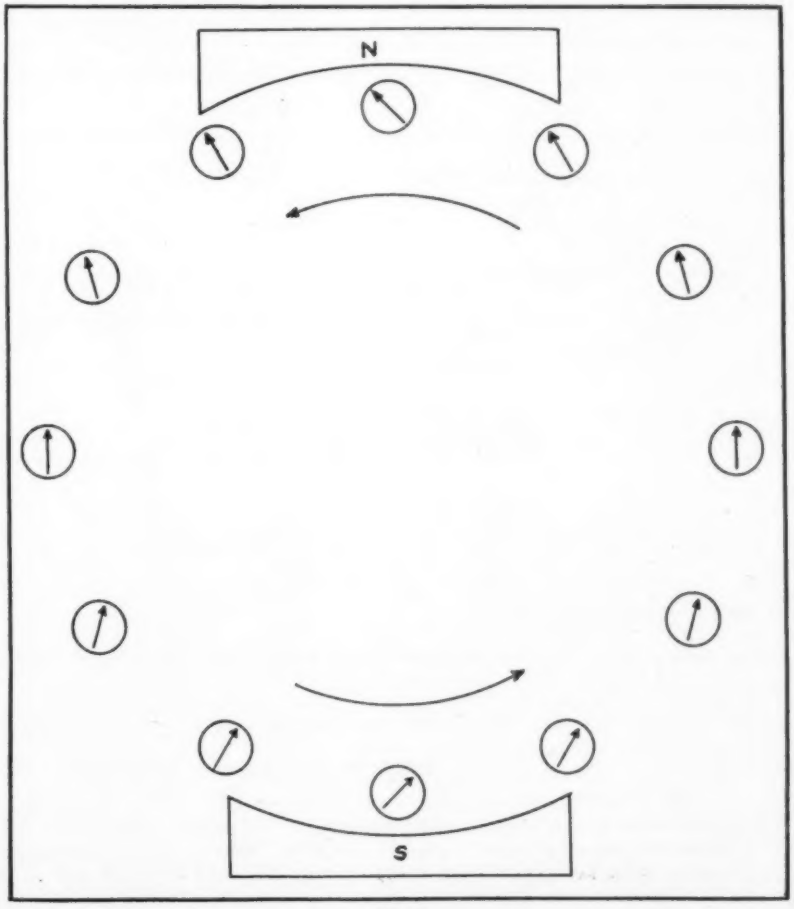


FIG. 9

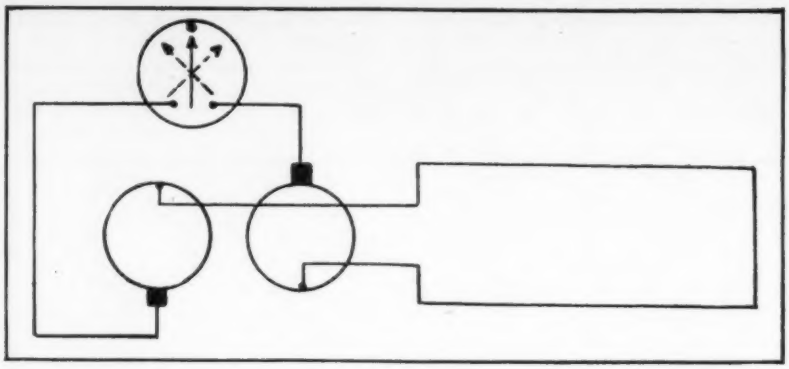


FIG. 10

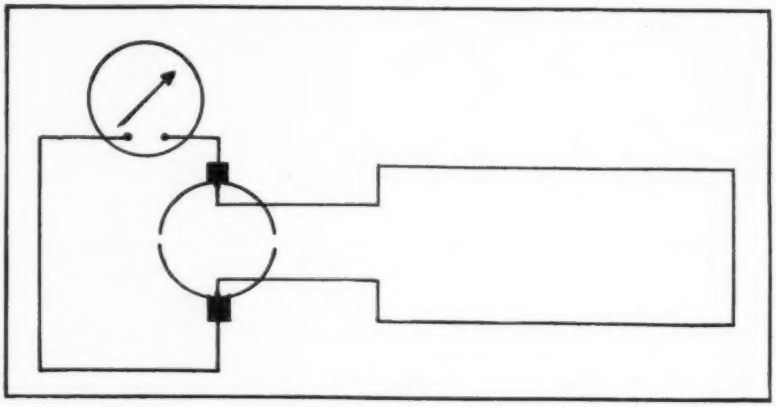


FIG. 11

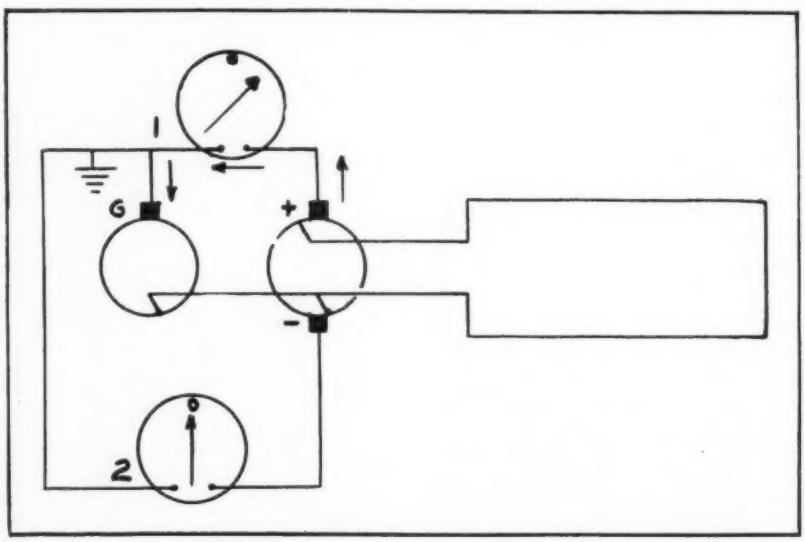


FIG. 12

armature loop. The other end of the armature loop is connected to the remaining section of the split commutator ring. The brush marked G is grounded. Meter 1 is connected to the positive brush and the grounded brush.

Meter 2 is connected in like manner to the grounded brush and the negative brush. When the commutator is in the position shown, current will flow through meter 1 as indicated. At this time there will be no current flow through meter 2 because both sides are grounded.

When the commutator turns to the position shown in *Fig. 13*, current will flow through meter 2 in a direction opposite to that which flowed in meter 1. At this time, both sides of meter 1 are grounded and no current will flow through meter 1. The current that flows from the positive brush to ground as illustrated in *Fig. 12* is known as positive pulsating current. The current that flows from the negative brush to ground *(Fig. 14)* is called negative pulsating current.

Fig. 14 is a schematic drawing showing how alternating current, positive pulsating current, or negative pulsating current can be taken from the same generator. Two ringers, A and B, are connected to the switch. They ring only when current passes *down* through them. (Such ringers are polarized; this will be explained later.) If the switch were set on 1, only ringer A would operate, the current being in the wrong direction to operate ringer B. In like manner with the switch on 3, only ringer B would operate, as the current would be in the wrong direction to operate ringer A.

Both ringers would operate if alternating current were connected to the line with the switch set at 2. In this illustration, the ringers are shown by their schematic symbol.

The generator is connected to a station line only when that station is being called. When the receiver at the station is lifted from the switch hook, the generator automatically is disconnected from the line.

In the magneto station the ringing current is generated manually by means of a magneto or hand generator. The hand generator embodies all of the basic parts of an alternating

(Please turn to page 26)

NEXT WEEK—RURAL TELEPHONE ISSUE

TELEPHONY's annual spring *Rural Telephone Issue* will be published May 26 and will contain many articles of interest to owners, managers and employes of the smaller Independent telephone companies. The articles will discuss all phases of small company operation. With the entire industry giving attention to the problems confronting these companies, every article in this issue will be timely and of value.

Mr. Welch suggests that the government give ample consideration to our own economy in sending equipment and supplies abroad to rehabilitate allied and defeated countries. . . . Recommends an orderly reconversion from wartime to peacetime manufacture.

THE END of the war in Europe is like the end of a nightmare which has held millions of people in terror. Proud nations have been enslaved and their leaders tortured. We can and do give thanks for these liberations. But we cannot be sure that the nightmare will have no evil aftereffects, or that everything is bound to come out all right in the end. That only happens in story books.

In the fairy tales, when the sleeping beauty was awakened by the kiss of Prince Charming, she always responded with gratitude. She was dutiful and beautiful and everybody lived happily ever after. How scandalized we should have been, as children, if we had read that the sleeping princess, upon being awakened from the long evil spell cast upon her by the wicked witch and other vile parties, got up with a terrific hangover, sore as a boil at the world at large, and immediately began making demands on everybody, Prince Charming included.

Yet, in a somewhat oversimplified way, that is about what is happening in Europe today, and the repercussions and disillusions are bound to be felt in our own national economy. It's not difficult to understand the various viewpoints if we simply want to be understanding. But it is going to be difficult—mighty difficult—to reconcile or compromise these viewpoints. Americans feel that we, as a nation, turned the trick in bringing about victory in Europe and that Europe in turn ought to be grateful, if not helpful.

Poland and France feel that they were the early sacrifices which slowed down and absorbed the brunt of Hitler's victorious blows in 1940, giving the other Allies time to mobilize and plan the long and bloody road back to victory. They feel that if there is any gratitude going around, the other Allies could give them some attention. And they want more than gratitude. Belgium feels about the same. Holland, witnessing with interest our continuing liberation of her former Pacific colonies, doubtless feels like the little Dutch boy who held his finger in the dike at the critical moment until the rest of the folks could be turned out for more active defense. Yes, they all want recognition and more. There is something to be said for all these respective claims of our liberated Allies.

Even our erstwhile enemies are beginning to add up their bills and look at us expectantly. When the American troops, a couple of weeks before the surrender, entered Essen, they found the manager of the great Krupp munitions works grousing around the bombed out ruins and lecturing our troops on the need for getting that business started again so Krupp could make farm machinery for Germany to begin feeding herself. He pointed out that if Krupp could make these things, we wouldn't have to export them from America. American farmers need their own machinery, he said, truthfully enough. The crowning piece of crust is that this party actually suggests that "financing" would be necessary to get Krupp started up again.

Think of it! Here was a place which only a few weeks before was making every diabolic munition that evil German genius could devise to shoot at us, and even before the war is over, the head guy is talking about a loan! From whom? Why from *us*, of course; from Uncle Sam — good old international Santa Claus.

What's more, the recent report to President Truman by Judge Samuel Rosenman on conditions in devastated Europe shows plainly that we have little choice, except to give some measure of continued relief to these stricken areas. The only alternative is famine and chaos—the favorite breeding ground for more trouble. Specifically, we have the choice of either exporting coal to Europe from our own already short supplies, or getting the bombed out German coal mines going so as to produce coal for shivering France, Belgium and Holland next win-

ter. This means clothing, food and housing for miners. German power plants, says Rosenman, should be started up to generate electricity—not for Germany, but to export to France. This, while we carry on the heavy burden of the Pacific war.

All of which brings us back to our own domestic economy. A great many civilian industries have been limping along on deferred maintenance and skimpy stock piles, hoping that the end of the war in Europe would give them a chance to catch up—to get in much needed equipment and supplies. The operating telephone industry is in this category.

It is not going to go down easily if the first fruits of reconversion are promptly packed up and shipped out of the country for foreign civilians — allied or otherwise. There is no danger of this happening with telephone equipment, *per se*. This is only because American-made telephone equipment is not one of the classification of goods chiefly needed to rehabilitate stricken Europe. But, indirectly, the same effect may be felt. If tons of steel, copper and other materials are earmarked for locomotives, farm and road-building machinery, and other items to set European business wheels turning once more, it means that much less steel, copper, etc., is to be allowed American telephone manufacturers to make switchboards, instruments, wire, hardware, etc.

The recent action of the WPB Office of War Utilities in lifting the ban on civilian telephone instrument production, and easing the restrictions on the manufacture of central office equipment, is fine as far as it goes. But as a practical matter, at this point, such new liberty of action amounts only to a fishing license. If, as and when, a manufacturer locates enough aluminum, copper, manpower, available production facilities, etc., to make such equipment—well, it is now legal for him to go ahead and produce.

War in the Pacific comes first, of course. But after that, who comes next? It is a tough question to answer. Few Americans, indeed, confronted with the actual facts of ruin in Europe would object to going along a little while longer on short rations. Added to that is the sensible long-range view that world peace can best be guaranteed by orderly democratic governments in Europe and such governments can't be established, much less thrive, on hunger, famine, disease and mob disorder, which only invite subversive ideologies. If a few more months, or even a year, of doing without is the price of setting up Europe once more on a safe and sane, self-sustaining basis, most of us undoubtedly would consider it a bargain price. It would be the price of peace insurance for Europe.

COLLIER'S "Acme secondhand phonograph record company, good morning, good morning, good morning, good—" O. SOGLOW

But after agreeing to that much in principle, we still can afford to examine our reconversion policies to see if that time lag between VE-day and relief for essential American civilian industry is not delayed unnecessarily. In this respect, why not consider this policy: *Why not let those industrial concerns reconvert first which are best equipped to handle the needed production of essential civilian items?*

Maybe that sounds a little general. Let's take a specific situation. Factory A used to make electric irons, but now is making small arms ammunition. Factory B used to make shotgun ammunition for hunters, but now also is making small arms ammunition for the Army. Presumably, Factory A wants to get back to making electric irons, which is an essential civilian item in which a critical shortage has developed. Presumably, Factory B will want to keep on making shotgun ammunition after the war is over, but obviously it will not be permitted to do so while the war is on. Therefore, instead of applying the Army cutback on small arms ammunition alike to Factories A and B, respectively, why not let Factory B go on making small arms ammunition needed for the Pacific combat and let Factory A go back to making irons as soon as possible?

Another example: Factory C used to make cameras and film, but now makes parts for bombsights. Factory D used to make slot machines and juke boxes, but now also makes bombsights. When the cutback comes, why not let Factory D go on making bombsights for the Pacific since, it's a cinch, the government is not going to let them go back to making slot machines and juke boxes for a long time? This would release Factory C for the resumption of civilian cameras and film—not as essential as electric irons—but quite essential for some civilian businesses, such as survey work, movies, etc.

Of course , it isn't all so simple. Take the case of Factory E, which used to make shirts, but now is making parachutes. Factory F used to make toweling, etc., but also is making parachutes. Owners of both Factories E and F have the idea that they would like to go on making parachutes after the war for civilian markets. But there will be only a limited civilian market—perhaps not enough for both. The only thing to do here is treat both alike—assuming both now are making equally good parachutes at comparable cost — and let them fight it out competitively when the shooting stops.

Coming now to our telephone field, we have an interesting situation. First, we have a group of established telephone equipment manufacturers, now tied up with war orders to make field switchboards, walkie-talkies, etc. They would like to go back to making civilian

equipment for operating telephone companies. The operating telephone companies, needless to say, would like to have such equipment produced as soon as possible, because they need it badly. The WPB has given the green light to go ahead, but only on a "fishing license" basis, meaning that these manufacturers have to shake loose enough production capacity, manpower and materials. But they are so filled up with priority orders they can't get started —may not get started for months.

On the other hand, we have another group of manufacturers also making communication items for the military—manufacturers who previously did not make telephone equipment and presumably have no intention of making such equipment in the future. Mostly, these are the former manufacturers of radio transmitters and receiving sets, radio tubes, phonographs and recording instruments. They are making good field switchboards and walkie-talkies.

Why not, therefore, turn over to this highly qualified second group as much as it can handle of further manufacture of military communication items? This would keep them busy, since it obviously would be some time before they could go back to wholesale production of phonograph recorders, etc. Resumption of civilian radio sets is essential, but not as essential as civilian telephones and other purchases of public utility equipment.

This would free some of the production lines of the first group—the parties who always have made civilian telephone equipment — which are best equipped to continue making the same. It might be the difference between months and weeks in making possible the delivery of badly needed telephone equipment now on order.

This is not to suggest that military orders be shunted entirely away from telephone manufacturers. Such a development would be manifestly impossible. Vast portions of great organizations, such as Western Electric and some of the Independent manufacturers, have been so thoroughly converted to military equipment production that they have become indispensable cogs in America's war machine. They are equipped best to go on making these military items and, therefore, under the general principles outlined, they should (and doubtless will) be required to go on making as much of it as the Pacific war demands.

But it is not out of line to suggest that Army-Navy-WPB consider, in connection with their forthcoming cutback orders, the possibility of releasing unneeded production lines of those concerns for essential civilian needs which are able best to engage in prompt and efficient civilian production. This simply would be an orderly way of avoiding the delays, lost motion and wasted production facilities which would result from a blind percentage application of cutbacks to all concerns now making military items, regardless of what they are prepared to do with their facilities when military orders are withdrawn.

The same principle might well apply to "rehabilitation" orders which may be coming along now as a result of United Nations Relief & Rehabilitation Administration (UNRRA) activities already referred to. If a factory which formerly made beer cans now is about to slack off on shell casings, why not shift it to UNRRA orders for canned foods for starving Europe? This, as distinguished from a manufacturer who wanted to get back to making hardware for pole lines and protective equipment.

* * *

Who will operate United States propaganda stations? During the war with Germany, the United States has had 37 transmitters spreading its news and views to all nations, specifically hostile areas. Fifteen of these have been owned privately but under federal control for the emergency. Nineteen are wholly government owned, and three involve joint investments, with a total government stake in physical plant of about $5,000,000. While the dollar question is not very important, the state, war, navy departments and the Federal Communications Commision, are puzzled over what to do about the stations now that many of them no longer are needed.

Columbia Broadcasting System has suggested that the government own, control and openly operate enough transmitters to express its official views, with all others turned back to private ownership. Walter S. Lemmon, president of the World Wide Broadcasting Foundation, has urged a return to complete competitive private ownership. Other large broadcasting interests are in favor of a private corporation, licensed to operate with time for government programs, somewhat comparable to the British Broadcasting Corp.

* * *

On May 7, the U. S. Supreme Court noted "probable jurisdiction" of the Federal Communications Commission's appeal in the New York Telephone Co. accounting case. This indicates a decision from the highest court on one of the vexing problems of accounting regulation—the right of a regulatory authority to apply the original cost standard of accounting retroactively. The case will not be argued before the court adjourns for the regular summer recess, but a fairly prompt decision can be expected after the new term commences in October. The case involves an attempt by the FCC to require the telephone company to "write down" its plant accounts so as to reflect (as of 1937) the alleged original cost of property items purchased from its parent company, American Telephone & Telegraph Co., during the 1920's. This would involve writing down over $4,000,000 included in purchase agreements admittedly based on reproduction cost estimates and parent company profits.

The New York Telephone Co. refused to change its books on the ground that such accounting was in accord with rules of the Interstate Commerce Commission, which had jurisdiction over interstate telephone companies at that time. Last August a three-judge federal court held against the FCC on grounds that if the difference between original cost and present cost was a "true increment in value" the FCC at this time "cannot apply retroactively a new system to write down the plaintiff's surplus." The Federal Power Commission, even more than the FCC, was reported to have urged this appeal so that no modern court decision approving any other value standard than original cost should be permitted to stand.

Calling Mr. Evans!

>> *The boss told his new private branch exchange telephone operator that if she were uncertain about any incoming call, to switch it to him. Next morning, right in the middle of a conference, she switched one to him. It was for a Mr. Evans. The boss held on while conferees scouted through numerous offices to locate Mr. Evans. There was one all right . . . an office boy in the mailing department, out of the building on an errand.*

"Is there a message?" asked the boss, true to his firm's good telephone manners.

"Tell Mr. Evans," said a frantic voice, "that his mother will not be able to meet him for lunch. My umbrella has just blown inside out."

A FACT Th·
A

1925
AUTOMATIC ELECTRIC DIAL IS WORLD'S BEST!

THIS Automatic Electric dial was introduced to the Independent telephone field almost twenty years ago. It was quickly recognized as *the best dial in the world*—quietest, smoothest, most durable, most dependable.

Now, even further improved, it is *still* the best dial in the world—

Even more quiet—Thanks to the unique "quieted" pawl, which cuts out even the slight click of pawl and ratchet.

Proved most durable—In controlled laboratory tests, standard Automatic Electric dials regularly stand up through millions of operations.

Proved extra-dependable—By the records of millions of Automatic Electric dials in actual service.

Others have tried to make dials as good as this. But in all the qualities that make a fine dial, the Automatic Electric dial remains unequaled. When you need dials for your telephones or switchboard positions, you'll do well to specify performance-proved Automatic Electric dials.

AUTOMATIC AE ED ELECTRIC

Originators and Developers of Strowger Step-by-Step Machine Switching Automatic Dial Systems
Makers of Telephone, Signaling and Communication Apparatus . . . Electrical Engineers, Designers and Consultants

Distributors in U. S. and Possessions

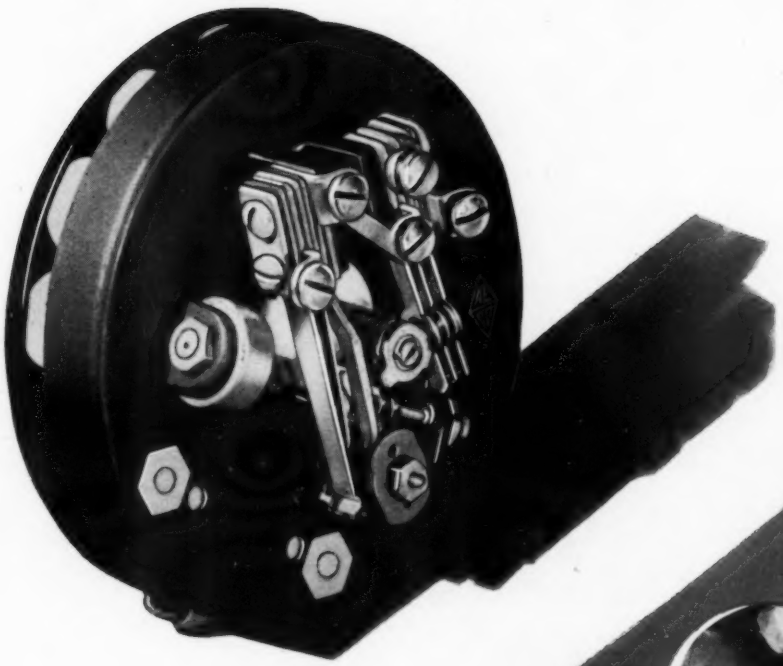
AUTOMATIC ELECTRIC SALES CORPORATION, 1033 W. Van Buren St., Chicago 7, U. S. A.
Export Distributors: INTERNATIONAL AUTOMATIC ELECTRIC CORPORATION

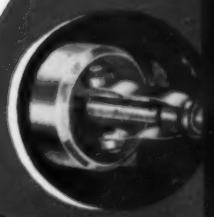
Flanged finger-plate pr
vides greater strengt
minimizes "fly-whe
effect."

...

ACT NOW

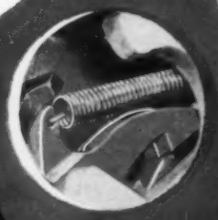
1945
STILL WORLD'S BEST!



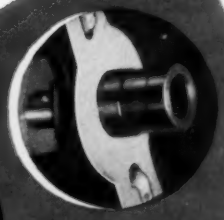


Fiber inserts in g... provide positive... control, with ne... wear.

Positive pawl-lock prevents dial over-running at end of its operation.



Patented "quieted" pawl makes this the world's quietest commercial dial.



Extra-long main bearing prevents side-play, minimizes wear.

Special laminated worm gear is self-lubricating, non-sticking, long-wearing.

Governor worm is accurately cut—turns smoothly and quietly on ball thrust bearing.

The Army-Navy "E" Pennant with Star flies for continued achievement in production. Awarded over the heads of Commander Electric Company.

KEEPING HI LINES OP

The pictures on these pages are official military photographs taken in the various theaters in the European war. They show the difficulties faced by the Army communications men in installing and maintaining telephone equipment so that Army messages could go through. The telephone industry—both Bell and Independent—can take pride in the m the Signa tions divi armed fo paign as sonnel g ence and bers of branches

Communication lines laid across the Moselle River in France by a Signal Battalion were broken three times, so the men decided to swim the lines across farther down the river.

American soldiers restoring communication.

Wire communication moves with the troops.

Using field telephones in a fox hole.

HE ARMY
PEN

n the magnificent job performed by he Signal Corps and the communica- ions divisions of other branches of the rmed forces in the European cam- paign as many members of their per- onnel gained much of their experi- nce and their zeal to serve as mem- ers of operating companies in both ranches of the telephone industry.

Center of Caltanissetta, Sicily, with Signal Corps men of the 45th Division setting up wire installations.

Soldier lineman works at night.

Soldiers improvise a cable plow.

Members of an American Signal Company work on a junction pole in Italy.

Men of a Signal Battalion erect telephone pole in construction somewhere in Australia. Man at left is in charge of the crew. It is his duty to see that pole is perfectly aligned, the hole filled and the filling tamped.

THE PLANT MAN'S NOTEBOOK

BY RAY BLAIN • TECHNICAL EDITOR

NUMEROUS inventors of our acquaintance are busy on the design of an insulator which will hold either bare or insulated wire without the use of a tie wire. So far, these designs have been so complicated that they would prove most difficult to manufacture. We feel sure, however, that some of these ingenious men eventually will come up with the right answer.

* * *

According to the Chesapeake & Potomac Telephone Co.'s *Call*, rural telephone service is more highly developed in this country than anywhere else in the world. There are 500,000 more farm telephones today than in 1935. More than 350,000 have been installed since 1940. In the depression of the early 1930's, farm telephones, as well as city telephones, declined substantially in number. Since then, the trend has been upward. Rural Bell telephones have increased 60 per cent since 1935, or about the same percentage as city telephones. This increase reflects the continuing efforts of telephone people to give good, economical service to more and more farmers.

* * *

The principles of electronic heating have been known to scientists and engineers for over 100 years. Industry has employed it for various heat treating processes for more than 25 years, yet, this revolutionary method of heating has gained broad acceptance by industry only within the last few years. High frequency used for electronic heating is alternating current ranging from 60 to 300,000,000 cycles per second.

Two methods commonly used by industry are known as inductive heating and dialectric heating. In inductive heating, the workpiece usually is surrounded by a coil of one or more turns of copper tubing through which the high frequency (HF) current flows. In dialectric heating, the workpiece receives the HF current from two or three plates instead of coils, and they often are referred to as "electrostatic plates" because the energy in this application is electrostatic as distinguished from electromagnetic in induction heating. Unquestionably, electronic heating will have numerous telephone applications in the postwar era.

* * *

Dan Seitz says that he is not in favor of making temporary repairs on cables if he is not sure of their lasting for any reasonable length of time. Also, he says that making temporary repairs and then forgetting to make them permanent seems to be one of the things so many small companies are apt to be guilty of doing. Dan is right as usual, and when he arrives at some of the answers on temporary cable repairs he has agreed to write a chapter in his maintenance series on the subject.

* * *

According to Freling Foster in *Collier's*, Hitler learned as far back as 1936 that recordings of his confidential conversations were being made secretly for the information of his Gestapo chief, Heinrich Himmler.

* * *

The new short coil type telephone relay now being used for many wartime purposes was designed carefully both mechanically and magnetically. It is claimed to be exceptionally efficient and dependable in operation. Waste of magnetic flux, characteristic of most telephone type relays, has been reduced to a minimum so that the ratio of work performed to power input is exceptionally high, thus insuring positive and reliable operation under severe operating conditions. The peacetime application of this type of relay should prove beneficial to the telephone industry.

* * *

We hear much of late in reference to radiant or space heating. This method raises the temperature of large areas by placing grids of pipe in floors, walls or ceilings. It is claimed that this method now is functioning in more than 1,000 buildings in the United States.

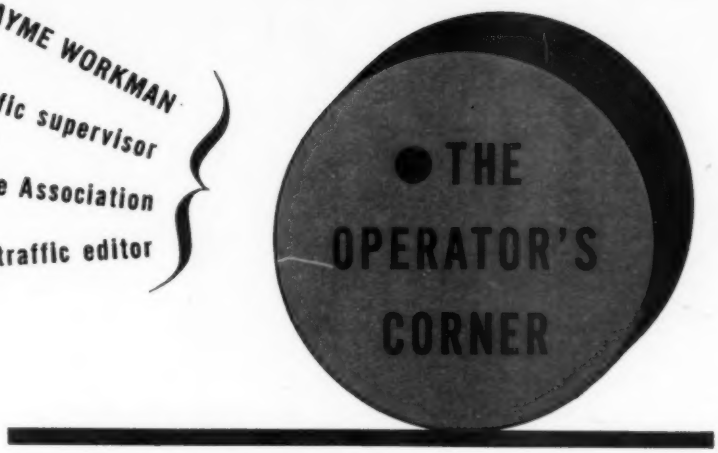
The results claimed are: Increased comfort, cleanliness, space conservation and operating economy. Radiant heating has been specified for hundreds of homes, schools, churches and industrial buildings planned for construction after the war. This type of heating should prove ideal for use in the modern telephone exchange.

The engineering and design features of radiant heating systems have been assembled in a 52-page booklet by the A. M. Byers Co. of Pittsburgh, Pa. We suggest that this heating method be investigated by anyone contemplating the construction of new exchange buildings after the war.

* * *

When men of the electrical industry want to speak disparagingly of their bungling workmen, they invariably refer to them as "knob and tube men." There probably is no generally accepted term for bungling workmen of the telephone industry although often they are called "wire tanglers." We also hear occasional reference to an inferior exchange as the "whoop and holler telephone company." However, we might add, proudly, that actually there are very few bunglers in the telephone industry.

by MAYME WORKMAN
traffic supervisor
the Illinois Telephone Association
and traffic editor



TELEPHONE customers appreciate courteous and attentive service, particularly in time of emergency or when serious illness or death occurs in a family. Telephone companies and their employes often receive oral and written commendations — expressions of appreciation for telephone service rendered on these occasions.

The following letter was addressed to the operators in the Greenville exchange of the Illinois Bell Telephone Co. This letter is typical of the sentiments expressed by telephone customers under similar circumstances:

"Dear Telephone Girls:

"I want to express my sincere appreciation of your kind cooperation and courtesies during Mr. King's illness and death. My family remarked many times about your prompt and efficient service.

"Gratefully,
"Lucy J. King"

The chief operator at the Greenville exchange sent Mrs. King's letter to her traffic superintendent with this comment:

"TELEPHONY magazine, dated November 11, 1944, contains an article by Mrs. Workman in which suggestions for a more pleasing service were offered at an Illinois traffic conference.

"The one I liked is 'To personalize your service, make it so outstanding that not only will your own subscribers note the improved service, but transients, as well, will remember your city or town as the place in which the telephone service excelled.' To accomplish this objective requires the 100 per cent cooperation of the plant, traffic and commercial offices."

Letters of commendation, words of appreciation and newspaper items lauding the girls at the switchboard for their friendly, gracious, cooperative service, always are appreciated, particularly during these trying times. The operators have their wartime problems, too, calling for extra efforts on their part to keep that smile—which they have made famous — in their voices.

"A Salute to Telephone Girls" appeared recently in the Logan (W. Va.) *Banner*. It is a pleasure to pass this tribute on to the readers of this column.

"We often think of women war workers as being confined to that group of ordinary housewives who have donned slacks to work in great munitions plants. There are a few of those around Logan.

"In Logan there are some women war workers who deserve high praise. Today we are thinking of the telephone girls.

"There are times when fast completion of a telephone message means everything to the mother of a serviceman or to the serviceman, himself. There are times when immediate action on a call to get a mine machinery part sent into Logan from out of town means the difference of 24 to 48 hours in the working of the mine. There are times when Washington officials have to be reached for a hasty decision on law and priorities whose immediate rendering is all-important to the running of our mines.

"We take our hats off to the girls who complete these calls in phenomenal time. We have the highest regard for the scientific progress of the telephone industry, but we know that without the helpful and tireless efforts of the girls, all the science in the world would not keep these war vital calls coming and going so well.

"The girls laugh among themselves at the voices of the 'hello girls' in the East and in the deep South. But actually we owe much to the cooperation of all these girls all over the nation.

"As one who has spent time and sweated blood trying to keep things rolling in an industrial operation, we know the public should appreciate the telephone girls more than it does."

There you have it, girls. A real tribute for that extra effort you are putting forth to get the calls through. And did you notice the editor's reference to telephone girls being "war workers?" He has the right slant on your job, all right.

Best Story of the Week— What's Yours

William Jamieson, automatic plant superintendent, Alberta (Canada) Government Telephones, Calgary, recently reported that the company's inspector, Dave Cross, was sent to check up on a room telephone reported in trouble at a hotel there. The inspector found the wire in the bell box was broken, where he also found one $10 bill and one $20 bill which had been deposited in the box for safe keeping—"we hope," reports Mr. Jamieson. At any rate, the depositor hasn't claimed his cash as yet—and now we're hoping!

Questions from Illinois Operators

(1) Should the filing time be changed on station-to-station calls as well as on person-to-person calls, such as sequence calls, etc.?

(2) Is it a chief operator's duty to count coin station money each month?

(3) If, after getting a DA report, the operator says she will call the subscriber in about 20 minutes, and he calls and places the same call again within the 20 minutes, shall the operator try the call before 20 minutes are up, or tell the subscriber she will call him?

(4) What phrase would you use when the ringing power is off?

(5) How do you pass an order to the TTC for a tributary collect call?

The answers to these traffic questions are presented on page 35.

ABC of the Telephone

(Concluded from page 16)

current generator. The magnetic field is created by three or five horseshoe magnets grouped together. From this arrangement comes the description three-bar or five-bar generator.

Theoretically, a hand generator should create alternating current following closely along an even sine wave pattern, similar to *Fig. 15*. In practice, because of the shape of the armature and the concentrated magnetic field, the wave pattern appears as *Fig. 16*. This figure was drawn from the pattern cast on the screen of an oscilloscope. A wave of the sort created by the hand generator, with its sharp peaks of effectiveness, operates the ringers on the line most satisfactorily. A study of *Fig. 16* reveals that the ringing current sent over the line circuit from a magneto set consists of a series of sharply accentuated impulses.

(To Be Continued)

V V

Bell System to Expand Murray Hill, N. J., Laboratories

A substantial increase in the Bell System's laboratories will be made as soon as war restrictions permit, according to a statement of May 6 by Dr. Oliver E. Buckley, president, Bell Telephone Laboratories, Inc. The laboratories' buildings at Murray Hill, N. J., which now house more than 1,000 persons, will be approximately doubled in size. The new building will extend the lines of the present one about 500 ft. in a northeasterly direction, and will be joined to it by a bridge with a sheltered bus terminal below.

The first unit of the laboratory cost about $2,500,000 and has been acclaimed widely as a model for other laboratory design, it was stated. Since it was opened in the fall of 1941, about 100 groups from varied industries, government departments, and some from abroad have come to study its new features. The unique requirement of a laboratory is that it must be designed for change.

Prominent among new features which visitors come to see are the quickly movable partitions and the ease with which wires, cables and pipes may be installed or removed and yet concealed from view. At intervals, small wings jut out from the main building providing well-lighted offices for physicians, chemists and engineers conveniently close to their laboratories. Shops, library, hospital and restaurant all fit into the pleasing functional pattern.

Designed for peacetime use, the laboratory opened just as war was breaking out and its new and adaptable space proved to be a great aid to Bell Laboratories' war service. Within its walls scores of war projects have been started, some small and completed quickly, others large and expanding from a room to whole sections of the building.

The executive offices of Bell Telephone Laboratories, Inc., will continue to be at 463 West St., New York City. A majority of the employes will continue to work there.

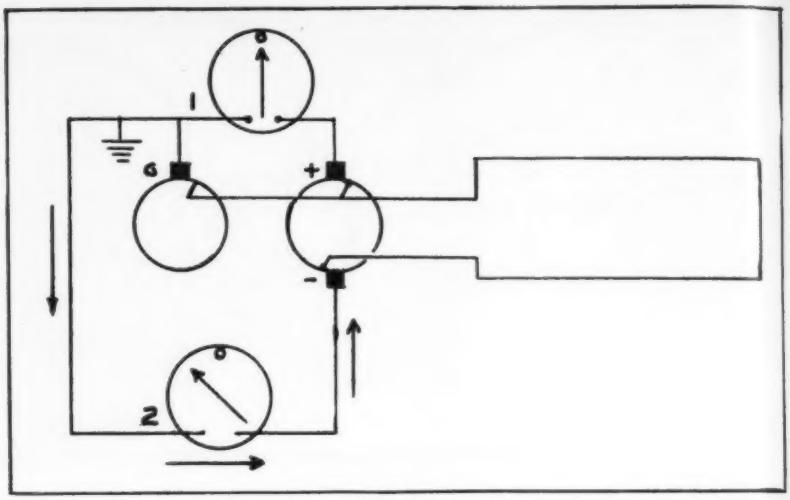


FIG. 13

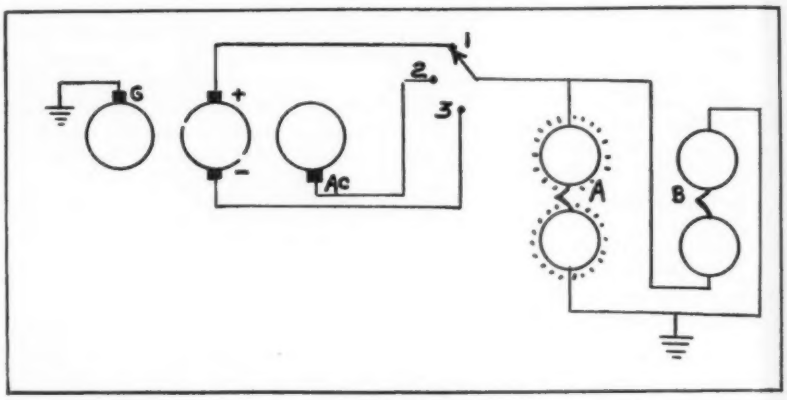


FIG. 14

FIG. 15

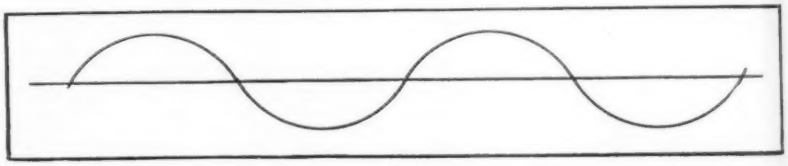
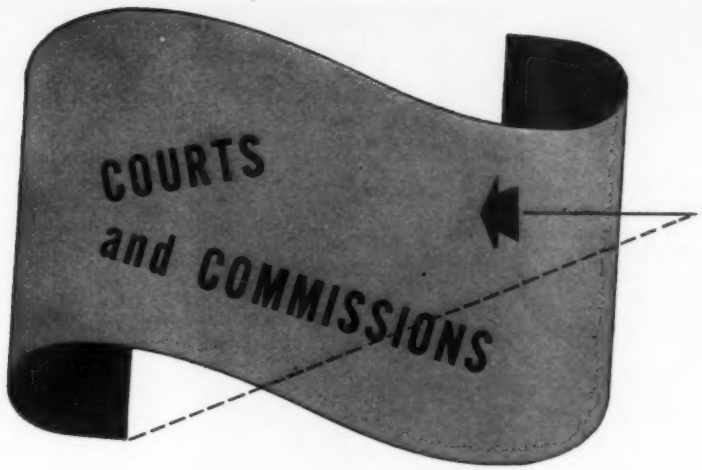


FIG. 16



Bonds to Finance Conversion And Uphold Rate Increases

The Nebraska State Railway Commission recently granted a substantial increase in rates to the Bertrand (Neb.) Telephone Co., Inc., and authorized that company to issue $16,000 of bonds to finance conversion to dial operation. (TELEPHONY, April 28, page 55.)

The new schedule of rates is to become effective when the conversion to dial service has been completed, which, the company estimates, will be about October 1. Priorities have been secured and no objection to the increase was entered by the OPA.

The net rates show an increase of business charges from $2.25 and $2.50 a month to $3.00 and $3.25; residence, from $1.50 and $1.75 to $2.00 and $2.25; farm, where company owns all equipment, from $1.50 and $1.75 to $2.00 and $2.25, and where subscriber owns telephones, from $1.00 to $1.50 for grounded and $1.75 for metallic; switching charges from 50 cents to 60 cents. Extension and bell charges remain the same.

No opposition was made to the increase by the patrons; on the contrary, 336 of the company's 367 subscribers signed a consent petition. The company serves 153 city, 117 farm and 97 switching patrons. Twenty-four-hour service is given. The present rates have been in effect since 1919. The company will continue giving Bertrand subscribers free service to Loomis, Funk, Holdrege and Atlanta, Neb.

The commission said that existing rates are lower than in Nebraska towns of similar size, but that the dial rates will be a trifle higher. The company operates in a newly-developed irrigation area, and its officers are of the opinion that the present demand for service will be increased greatly when critical materials and manpower become available. Because of shortage of help, the chief operator is compelled to work 18 hours every other day. Under the new rates and with the new service, the personnel problem will be alleviated and a sufficient reserve set up to maintain good service.

The commission found that the total investment will be increased from $29,827 to $35,969. Total operating revenues in 1944 were $7,216, and operating expenses $6,265, leaving a balance, after taxes, for return and fixed charges of $759. The expected annual revenue under the new rate is $8,846, which will leave for return and fixed charges $1,332, or a return of 3.71 per cent. No dividends have been paid since the company was re-incorporated in 1932, and the commission said an insufficient amount for depreciation had been set up in the past.

The $16,000 bond issuance is to finance the purchase of dial equipment, construction of a small fireproof building in which to house the equipment and to take care of an outstanding obligation against the present building. The bonds run to the Mortgage Investment Co. of Hastings, Neb., and under the agreement submitted payments of $150 a month are to be paid the trustee, plus $50 a month for a contingent reserve until it totals $1,500. The new bonds will bear 4 per cent interest.

The commission found that the additions to property will cost $14,370, and with retirements of $8,296 will leave the net addition to plant investment $6,074.

The balance sheet of December 31, 1944, showed a fixed investment of $28,235, and total assets of $43,122. The company has a capital stock of $25,000 and a depreciation reserve of $11,200.

Under the new rates, the annual net operating revenues, without depreciation and fixed charges, are estimated at $3,159.

V V

Remand Suit on Telephone Extensions to Commission

Holding that the New York Supreme Court "is not the proper forum for handling such an issue," Justice David W. Peck on May 4 dismissed a petition by Leon Leighton, an attorney, to compel the New York (N. Y.) Telephone Co. to remove all extension telephones in residences and redistribute them to persons now without telephone service. (TELEPHONY, May 12, page 28.)

Justice Peck remanded the petitioner to the proceeding he has already instituted before the New York Public Service Commission.

Mr. Leighton asked for the order on the ground that he had been unable to obtain a telephone for his residence and cited in his petition provisions of the Public Service Law "requiring every telephone corporation to give instrumentalities and facilities as shall be adequate, just and reasonable and not give any undue or unreasonable preference to any person. . . ."

Attorneys for the telephone company argued that the War Production Board has nationwide jurisdiction over the allocation of telephone facilities, and that the New York Public Service Commission has jurisdiction over the service of the company.

In dismissing the suit, Justice Peck acknowledged the merit of the claim "that a fair distribution of telephone facilities would be aided by the telephone company taking surplus instruments which it owns from those who have adequate telephone service without extensions, and employing service for those who have no service at all."

"But," he added, "there is no question of law involved in this case. The court is so clear as to the unsuitability

of this forum for handling such an issue that petitioner should be remanded to the proceeding which he has already instituted before the New York Public Service Commission."

V V

Dewey Appoints Donaldson To New York Commission

Gov. Thomas E. Dewey recently appointed Judge Howard B. Donaldson of Jefferson County, N. Y., to succeed M. William Bray whose term as a member of the New York Public Service Commission expired February 1.

The appointment of Judge Donaldson shifts the political alignment of the commission to the Republican side for the first time in many years. The other two Republican members of the commission are George A. Arkwright of Brooklyn and Maurice C. Burritt of Hilton. The Democratic members are Chairman Milo R. Maltbie of New York and Neal Brewster of Syracuse.

Members of the public service commission are appointed by the governor for 10-year terms at $15,000 annually.

V V

FCC Publishes Statistics On Communications

The Federal Communications Commission's annual publication, entitled *Statistics of the Communications Industry in the United States*, covering the year which ended December 31, 1943, now is on sale by the Superintendent of Documents, Government Printing Office, Washington 25, D. C., at 35 cents a copy.

This publication contains many pertinent facts concerning individual telephone, telegraph, cable and radio-telegraph carriers and holding companies compiled from the annual and monthly reports filed with the commission. Considerable financial and operating data relating to standard broadcast stations and networks also are included.

V V

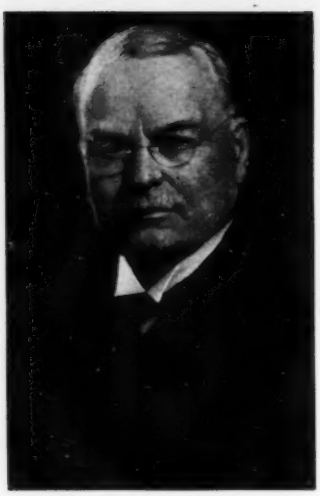
Complete Oral Arguments On Michigan Bell Rebate Trial

Oral arguments were completed on May 7 before Circuit Judge Leland W. Carr on the appeal by Michigan Bell Telephone Co., Detroit, from a Michigan Public Service Commission order directing the utility to rebate $3,500,000 on 1944 telephone bills to approximately 800,000 customers. (TELEPHONY, March 24, page 28.)

Judge Carr said he would take the case under advisement, postponing a decision on the appeal until later.

Thomas G. Long, general counsel for Michigan Bell, argued that the commission's order, issued December 28, 1944, was retroactive and deprived the firm of property without due process of law. He said the rebate order would cut Michigan Bell's return on its investment to a "confiscatory" 3.34 per cent and actually increase taxes by $427,000.

James W. Williams, counsel for the commission, contended the commission may act to prevent a utility from passing on "unnecessary elements of expense" to consumers.



THEODORE GARY, one of the most prominent independent telephone pioneers, celebrated his 89th birthday at his home in Macon, Mo., on May 13. Members of his immediate family were present at a birthday party in his honor. Mr. Gary still holds his keen interest in the telephone business and maintains his office in Kansas City, Mo. His telephone career began in 1897 when he purchased the telephone company at Macon from which grew the present Gary Group of operating and manufacturing companies.

V V

Proposes Increase on Public Utility Companies' Levies

A recommendation that levies on public utility companies be "substantially" increased was one of seven proposals made May 10 by a special committee of the League of Virginia Municipalities.

Following a study of current and prospective financial problems of Virginia cities and towns, the committee submitted its findings in a 40-page report to the Virginia Advisory Legislative Council, authorized by the Virginia Legislature to study state and local taxation.

V V

Requests Rate Increases for 26 Oklahoma Exchanges

The Southwestern Associated Telephone Co., Lubbock, Tex., recently filed an application with the Oklahoma Corporation Commission for rate increases and adjustments affecting 26 of its exchanges in Oklahoma. Date of the hearing had not been fixed at this writing.

According to the application, one-party business telephone rates will be increased from $2.50 to $3.00 per month, and residence, one-party service from $1.50 to $2.00 per month in the following towns: Agra, Arnett, Boise City, Beaver, Carney, Cheyenne, Gage, Goodwell, Marland, Morrison, Mulhall, Perkins, Redrock and Ripley.

Other proposed rate changes asked by the company include: Increase of 75 cents per month on business and residence telephones in Coyle; increase of 50 cents on business and 75 cents on residence in Glencoe; increase of 25 cents per month on residence telephones at Guymon and Texhoma; increase of 25 cents per month on residence and business telephones at Shattuck and Waynoka; increase of 25 cents on residence and decrease of 25 cents on business telephones in Yale.

An additional charge of 25 cents per month for desk equipment is requested for Billings, Buffalo, Carney, Freedom, Gate, Guymon, Lavern, Shattuck, Supply, Texhoma and Waynoka.

Increases of 25 cents per month on rural multi-party lines are asked for several of the exchanges. Also, an increase from $4.00 to $6.00 per month on switching rates is requested for 17 exchanges.

V V

Petitions to Discontinue Telephone Service

The Sparks (Okla.) Telephone Co. is to be represented before the Oklahoma Corporation Commission on May 23 to support that company's application for permission to discontinue telephone exchange service there.

Mrs. J. D. Murray, company owner, claims that the exchange which at one time had 160 subscribers, now is reduced to 60 subscribers, and that wartime scarcity of help and materials have made it impossible to give proper service or to check the downward trend of business.

V V

Summary of Commission Rulings and Hearings

Federal Communications Commission

May 5: Granted authority for three months to American Telephone & Telegraph Co. for its fixed public radiotelephone station at Lawrenceville, N. J., to communicate with the Ministry of Communications at Quito, Ecuador, subject to the condition that circuit operation shall not cause interference with operational circuits of U. S. armed forces, and that additional frequencies will not be required for circuit operation.

May 8: Granted authority to American Telephone & Telegraph Co. and New York Telephone Co. to supplement existing facilities over existing cable conductors, between New York and Syracuse, N. Y., and other points. Estimated cost, $717,000.

California Railroad Commission

May 4: Application filed by California Water & Telephone Co., San Francisco, seeking permission to give exchange telephone service to Desert Hot Springs, Riverside County.

May 4: Application filed by J. G. and E. V. Grover seeking authority to sell Farmington (Calif.) Telephone Co. to J. F. and M. Neher.

May 4: Issued order to Associated Telephone Co., Ltd., Santa Monica, authorizing stock issuance.

Illinois Commerce Commission

May 15: Hearing on complaint of Mrs. J. S. Brennan against Illinois Bell Telephone Co., Chicago, for alleged excessive charges and unsatisfactory service.

Kansas State Corporation Commission

May 8: Heard and advised Farmers Telephone Association of Flush, Kan., on its application for authority to make certain rate changes.

May 8: Dismissed complaint of Mrs. J. G. Magee, McCleuth, against Wm. A. and Lottie M. Seymour, doing business as Boling (Kan.) Telephone Exchange, for refusal to render service to complainant and for overcharge of monthly rate.

May 14: Hearing on application of C & M Telephone Co. for permission to transfer franchise and cease operating at Lansing and Monticello and territory adjacent thereto, and for certificate of convenience and authority to transact telephone business in Madison and territory adjacent thereto.

May 14: Hearing on application of Southwestern Bell Telephone Co. for permission to transfer franchise and cease operating insofar as it furnishes telephone exchange service at Madison and territory adjacent thereto, and for a certificate of convenience and authority to transact telephone business in and adjacent to Lansing and Monticello.

May 22: Hearing on application of Hoyt (Kan.) Telephone Co. for authority to make certain rate changes.

May 22: Hearing on application of Farmers Mutual Telephone Co. of Jewell Co., Burr Oak, for authority to make certain rate changes for switching service there.

May 29: Hearing on application of Green (Kan.) Telephone Co. for authority to make certain rate changes.

Nebraska State Railway Commission

May 24: Hearing on application of Union Telephone Co., Bloomington, for authority to increase rates there.

Wisconsin Public Service Commission

May 14: Hearing on investigation of alleged refusal of Wisconsin Telephone Co. in Beloit to extend lines to serve Charles Rinehimer's residence in Afton, Rock County.

May 15: Hearing on application of Browntown (Wis.) Telephone Co. for authority to increase rates.

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All types of "60" series paystations are in stock—ready for immediate delivery. See them in our complete Paystation Catalog No. 4078—sent promptly on request.

Utilities Order U-2, the regulation that limits the installation of public telephones, specifically provides for "essential public paystations," and the use of wiring materials required in connection with their installation. For such installations, telephone companies are permitted to use the AA-1 preference rating granted by Utilities Order U-3 for maintenance, repair and operating supplies.

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AT&T-FCC Announce Toll Rate Reduction

The American Telephone & Telegraph Co. announced May 9 that reductions in its long distance rates amounting to $21,000,000 annually have been agreed upon with the Federal Communications Commission to be effective July 1. The reductions are at the longer hauls beginning at 790 miles. For example, the day station-to-station rate between New York and San Francisco will be reduced from $4.00 to $2.50, while the rate between New York, N. Y., and Denver, Colo., will be reduced from $3.25 to $2.35.

In commenting upon these reductions, President Walter S. Gifford of AT&T stated that the FCC has insisted that the earnings from such rates should be considered by themselves, regardless of overall Bell System earnings, and has insisted that, when so considererd, they produced a return greater than could be justified—this in spite of the fact that the return resulted from the extraordinary wartime volume of long distance calls and the temporary overloading of the long distance plant.

V V

Plant Committee Studies Economy of Dial Operation

According to the May 8 bulletin of the United States Independent Telephone Association, the USITA Plant Committee, under the leadership of Chairman Fred E. Norris, has begun a study of economies involved in dial operation.

Chairman Norris pointed out that studies of dial versus manual operation usually have been concerned with problems relating to the mechanics of conversion or to public relations, whereas the present study will be directed to reveal whether dial operation pays financially.

The committee plans to print its findings in booklet form for distribution to the industry.

WHO AM I?

I am the companion of your daytime
And the guardian of your sleep;
From day to day and year to year
This eternal vigil I keep.
I bring you close to loved ones,
And guard your every minute,
I am your willing slave and servant,
And my heart is ever in it!
I am romance and rhythm, laughter and song;
I sing of happiness, joy and cheer.
I am service, safety and friendship—
Ever ready, willing and near.
So, when you are sad, blue and alone,
Think of me—the telephone!

—Helen Pratt

V V

Companies Relinquish Territory To Independents

The Farmers Union Telephone Co. at Downey, Somerset County, Pa., has discontinued service and its former territory now is being served from the Berlin exchange of the Pennsylvania Telephone Corp., Erie. The Carter Hill (Pa.) Telephone Co., Erie County, plans to relinquish its territory to the Wattsburg (Pa.) Telephone Co., according to a recent announcement.

The Farmers Union company served some 28 subscribers, and the Carter Hill company serves approximately 20 stations.

V V

Three General Group Companies Publish New Employe Magazines

The Indiana Associated Telephone Corp., Lafayette, the Michigan Associated Telephone Co., Muskegon, and the Lexington (Ky.) Telephone Co., all owned or controlled by the General Telephone Corp., New York, N. Y., in May published the first issues of their new employe magazines.

The companies' magazines, entitled *Tele News*, *Tele Topics* and *Tele Tidings*, respectively, are very well prepared and attractively set up to include many pictures, covering news of the companies, their employes and items of general interest concerning the various exchanges.

These monthly publications are under the editorship of James Richardson who is aided by an employe from each exchange of each of the three companies who is responsible for collecting news and reporting events for his particular employe magazine.

In the first issue, Edwin M. Blakeslee, president of the companies, said, "With this issue there is officially and formally launched a company magazine — to be more specific — your magazine. . . ."

V V

Teaches Safety Methods

LLOYD JENKINS, service department employe of the Lincoln (Neb.) Telephone & Telegraph Co., recently was assigned to assist Capt. C. G. Haren, ground safety officer at the Lincoln Army Air Field, in presenting a course in modern safety methods to key military and civilian personnel.

FCC Chairman Views Coming Tasks

Stating that VE-day emphasizes the tasks ahead, Chairman Paul A. Porter of the Federal Communications Commission issued the following statement on May 10:

I do not anticipate any substantial changes in the policies of the Federal Communications Commission until the Stars and Stripes are planted firmly in Tokyo.

We are in constant touch with the War Production Board and are aware of its plans for the gradual reconversion of plant and facilities for the production of communications equipment. It does not appear that there is any immediate prospect for relaxation of the commission's existing freeze policies.

Demands upon the communications industry for the Pacific war apparently will continue to be heavy for some time to come. The commission will coordinate its licensing functions closely with the realities of production and when it becomes possible to make available manpower and materials for new construction or the improvement of existing facilities, all interested parties will have a full and equal opportunity to have their matters considered by the commission. Ample notice will be given concerning any change of existing policies or procedures.

Broadcasting has distinguished itself during the first phase of this war. *Other communication services have performed miracles in the face of great obstacles.* All are agreed that there is no occasion for relaxation until final victory is achieved.

V V

Southern Bell Completes Show Cause Testimony

The Southern Bell Telephone & Telegraph Co. on May 10 completed testimony which it had begun May 2 before the Railroad & Public Utilities Commission of Tennessee, Nashville, to show cause why its intrastate long distance rates should not be reduced to a level with its interstate tolls. (TELEPHONY, May 12, page 30.)

Commissioner John C. Hammer said that Stanley White, auditor-engineer for the commission, would testify May 11 and that the case might be concluded with a summation by John Gore, chief counsel for the company.

After completion of testimony, the company will be granted a period in which to file briefs. A decision on the case will be forthcoming sometime later.

V V

Buried Telephone Cables Treble Texas Circuits

Long distance telephone cables buried underground and now in service have trebled the number of circuits between Dallas, Houston and San Antonio, Tex., C. L. Stewart, division commercial superintendent of the Southwestern Bell Telephone Co., recently disclosed.

Burial of the twin cables underground with a special cable plow was the largest single telephone construction project ever undertaken in Texas, Superintendent Stewart said. Being underground, the cable is less vulnerable to storm damage.

Ultimate capacity of the cables is 300 simultaneous conversations.

V V

E. J. Ford Succeeds McCormick As Commercial Manager

Edward J. Ford, collection supervisor of the Home Telephone & Telegraph Co., Fort Wayne, Ind., was promoted to commercial manager, effective May 1.

E. J. FORD

Mr. Ford, lifelong resident of Fort Wayne, has been associated with the telephone company for 16 years and has served the last eight years as collection supervisor. In his new position, Mr. Ford will have supervision over all the commercial activities of the Fort Wayne company.

V V

Appointed War Loan Chairman

LEON F. ROBERTS, commercial manager of the Jamestown (N. Y.) Telephone Corp., was appointed Jamestown chairman of the Seventh War Loan campaign which opened May 14.

V V

Converts to Dial Service

The Tulelake, Calif., exchange of the California-Oregon Telephone Co. recently was converted to dial operation.

V V

To Install Dial Service

Stockholders of the Matlock (Iowa) Telephone Exchange at their recent annual meeting voted to install dial type telephones as soon as possible.

Signal Corps Pushes Ledo Road Through Jungle

The part played by the Signal Corps in the construction of the Ledo Road is pointed up in a report recently received by the War Department from M/Sgt. John E. Duffy of Camden, N. J., serving with a Signal Service Battalion Special.

During its period of construction, the report stated, the Ledo was a "fighting road," pushing into hostile territory in the manner of a forward infantry division, with signal teams usually on the crest of the attack.

"On my tour of duty in China to deliver equipment," Sergeant Duffy stated, "I went to the farthest point of the new Ledo Road in Burma. Men actually had pushed a road through the jungle.

"The war was fought along the road because the density of jungle growth makes it impossible to fight there. Every time a town was taken (they called them towns although there was absolutely nothing there), a signal team set up an advance echelon and pushed the road farther."

V V

Name New Operators

MRS. A. K. HUITT and MRS. JOE STONEKING recently became chief and relief operator, respectively, for the Cushing, Iowa, exchange of the Central West Co., Sioux Falls, S. D., succeeding FLORENCE SCHLICHTING, former chief operator.

V V

Installs New Equipment

The Lake Benton, Minn., exchange of the Central West Telephone Co., Waverly, Minn., is installing modern equipment as part of a complete conversion, it was reported recently. J. L. Steinhagen is general manager of the company.

V V

Directs War Loan Drive

G. FRED SWITZER, president of the Harrisonburg (Va.) Telephone Co., will direct the Seventh War Loan Campaign there, Ben C. Moomaw, assistant to James S. Easley, state director, announced April 25.

V V

Works for Commission Engineer

ED. M. WOODY, Elk City, Okla., recently was employed as engineering clerk in the office of B. RICHARDSON, telephone engineer of the Oklahoma Corporation Commission, Oklahoma City.

DAKIN SUCCEEDS O'CONNELL IN GENERAL GROUP

WALTER DAKIN, Madison, Wis., newly elected president of the central group operating companies of General Telephone System, recently announced several changes in the organization of the Commonwealth Telephone Co. (Wisconsin); Illinois Commercial Telephone Co., Pike County Telephone Co., Central Illinois Telephone Co. and Illinois Standard Telephone Co., state offices of which are located in Springfield.

Mr. Dakin succeeds J. F. O'Connell, Madison, who has retired under the retirement pension plan of the companies, due to ill health following a serious illness last December.

H. W. Pike, also of Madison, has been elected a vice president, and W. O. Trettin, Madison, has been appointed chief engineer of the companies comprising the group.

All of the changes for the Commonwealth company were effective April 26, and on April 27 the changes for the four Illinois companies became effective.

In addition to his election as president of the central group companies, Mr. Dakin also was appointed general manager of the Commonwealth company.

Mr. Dakin has had a long and successful career in the field of telephony, which started in 1906 with the Chicago Telephone Co. as time and material keeper on underground construction. Various promotions led to the position of plant engineer in 1912, and later he was appointed appraisal engineer for the central group of Bell telephone companies operating in Ohio, Michigan, Indiana, Wisconsin and Illinois. In 1927, Mr. Dakin accepted the position of general plant superintendent of Commonwealth and its associated companies, and in April, 1944, was made vice president and chief engineer of the central operating group companies. He also became a director of the Illinois Commercial company in 1932, and of the Commonwealth company in 1944.

An engineering graduate of Dartmouth College, Mr. Dakin was prominent in athletics, still retaining his interest in all forms of competitive sports.

WALTER DAKIN

L. F. SHEPHERD

L. F. Shepherd, a vice president of the Commonwealth company and vice president and general manager of the Illinois companies, resides in Springfield.

In 1926, Mr. Shepherd was employed by the Belvidere Telephone Co. as an apprentice station repairman, and began his association with the central group companies of the General System when the Belvidere company was acquired by Illinois Commercial.

Later promotions resulted in Mr. Shepherd being made local manager of the Commonwealth's Mineral Point, Wis., exchange, traffic engineer in the central group offices in Madison, traffic superintendent of Illinois Commercial group commercial and traffic superintendent, and then vice president and personnel director of the central group companies, after which he was made

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H. W. PIKE

W. O. TRETTIN

vice president and general manager and a director of the Illinois companies in 1944.

Mr. Pike joined the group staff at Madison in 1928 as general auditor. He later was transferred to other group positions as commercial engineer, commercial superintendent, and rates and tariffs engineer. Also, he recently was elected a director of the companies comprising the central operating group.

Mr. Pike graduated from the University of Nebraska College of Business Administration, and took graduate courses in business statistics at Columbia University and in auditing at New York University. Prior to joining the central group organization, Mr. Pike had been an instructor in accounting and economics in the University of Nebraska for two years, and had broad experience in public accounting work and as auditor for companies operating various types of utilities.

Elizabeth M. Hiestand, secretary and

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It is constructed as a single unit and equipped with a reinforced back panel for mounting a wall telephone or coin collector.

The **CHURCHILL** Booth is made of selected white oak and is available in light or medium oak in a satin finish.

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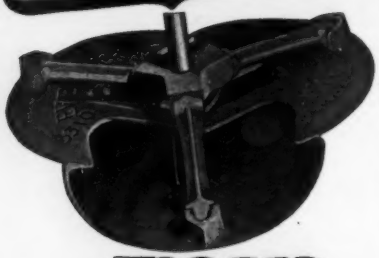

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Operates direct from lighting circuit. Delivers constant, humless D.C. to operator's circuit on magneto switchboard. Power-off relay assures uninterrupted service in case of power failure. Low in cost! See your jobber, or write direct for full information.

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treasurer of the central group companies, has served continuously as secretary since 1928, and as treasurer since 1937. She also is, and for several years has been, secretary and treasurer of the east-central group of operating companies of the General Telephone System.

Miss Hiestand is a native of Madison and attended the University of Wisconsin before she joined Commonwealth Telephone Company a few years after its organization. She advanced from her original position as a clerk to that of bookkeeper, auditor, and assistant secretary and assistant treasurer.

A. G. Kiesling, general auditor of the central group companies, received his appointment early in 1944. He previously had served as assistant general auditor, and became associated with the companies of the central group in 1929. He is a graduate of the University of Wisconsin, and became a certified public accountant in 1940.

While on the accounting staff of the central group companies, Mr. Kiesling was appointed assistant to the comptroller of General Telephone Service Corp., New York City, in 1934, and served in that capacity until 1936, when he returned to Madison as assistant general auditor.

Mr. Trettin entered the employ of the Tri-State Telephone & Telegraph Co., St. Paul, Minn., in 1910 in the equipment department, assigned to central office equipment maintenance, later being advanced to equipment engineering assignments. In 1913, he entered the employ of the Alberta Government Telephones, Edmonton, Canada, as an equipment engineer, leaving in 1916 for service with the Canadian Signal Corps.

After returning in 1919, Mr. Trettin was assigned to appraisal work assisting the J. G. Wray Co., Chicago, then engaged in an appraisal of the government system. Later, he was advanced to purchasing agent for the government system for two years. He was outside plant engineer for seven years. The early postwar years of that period were marked by intense telephone construction activity in western Canada, and he effected material economies by working out long span construction designs. In 1929 he rejoined the J. G. Wray Co. and was assigned to the Central Carolina Telephone Co. as plant superintendent in charge of a rebuilding and conversion program for 30 exchanges, which was completed in 1930.

In 1931, after acquisition of the Central Carolina company by the predecessor of the present General Telephone Corp., Mr. Trettin was trans-

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A Telephone
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If you don't have plenty of replacement ringers on hand better send in some old ones to Suttle for remanufacturing. That's the sensible thing to do.

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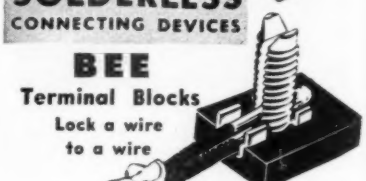

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ferred to the central group office at Madison as general plant engineer. Later he received appointments as assistant general plant superintendent and assistant chief engineer of Commonwealth and Illinois Commercial. He is a registererd professional engineer in Wisconsin.

Mr. O'Connell, retiring president of the central group companies, was one of the original incorporators of the Commonwealth Telephone Co. in 1920, and had been an operator of telephone properties in Wisconsin since 1917. He also was one of the organizers of what is now General Telephone Corp., which is the largest Independent telephone system in the United States. He is well-known in the telephone industry, having served as president, director, and on several committees of the United States Independent Telephone Association.

V V

Red Cross Sets Up Message Service to Freed Americans

Families of thousands of American soldiers recently released from European prison camps will receive first announcements of their liberation through the American Red Cross, under special arrangements made to supplement the Army's notification service, Basil O'Connor, chairman, announced May 12. This service is available to those men requesting it.

These next-of-kin notifications will have priority over all other Red Cross communications, Mr. O'Connor said, pointing out that commercial cables will be used to avoid taxing military facilities. Full cost will be borne by the Red Cross.

Liberated men who are awaiting transportation home will have an opportunity to communicate with their families. They can send messages through Red Cross requesting information on the health and welfare of their relatives, and the Red Cross will accept the replies for immediate delivery overseas. While the Red Cross cannot guarantee delivery of the replies, because many of the men will be moving homeward, every effort will be made to speed the messages. National headquarters will make special telephone calls to hometown chapters to check up on tardy replies.

Families are asked to make no effort to meet the liberated men on their arrival in the United States, and no inquiries should be made of the Red Cross or War Department.

Identical service is being provided to liberated prisoners of allied nations having relatives in the United States.

V V

To Have New Building And Dial Service

The Ellensburg (Wash.) Telephone Co. soon will construct a new exchange building there and the entire system will be converted to dial operation, R. E. Rudolph, manager, announced recently.

Priorities for all materials and equipment have been approved by the WPB, Mr. Rudolph said.

It is expected the change-over to dial operation, including changes in individual telephones in the city and the valley, will be completed by the middle of 1946, Mr. Rudolph stated.

V V

Shows Thanks With Fish Fry

Employes of the South Carolina Continental Telephone Co., Sumter, were guests at a fish fry April 26, given by A. K. Browning of Browning's Fish Camp in appreciation of the work the organization had done in the construction of rural telephone lines.

V V

Takes Charge of Idaho Office

PATRICIA SPARLIN, relief operator for the Interstate Telephone Co., Spokane, Wash., recently assumed charge of its Plummer, Idaho, office. MRS. MARGUERITE KLIEWER is the company agent at Plummer, succeeding MRS. STELLA BOVEE.

Answers to Traffic Questions on Page 25

(1) Yes. There is no distinction between person-to-person and station-to-station calls.

(2) This is not a general practice.

(3) We comply with the customer's request and ask for an AG on the call, disregarding the subsequent attempt time.

(4) Say, for example, "I'm sorry, there will be some delay on your call. Will you call a little later, please?"

(5) Precede your order with the word collect.

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Operator Retires After Service of 47 Years

Emma J. King, New Jersey Bell Telephone Co., switchboard operator whose career in the telephone service began at Paterson before the turn of the century, recently retired after 47 years of active service.

A framed certificate of honorary life membership was bestowed on Miss King by the Telephone Pioneers of America.

V V

Elect Pioneer President By Mail Ballot

J. E. Chambers, superintendent of buildings and supplies for the Cincinnati & Suburban Bell Telephone Co., Cincinnati, Ohio, recently was elected president of Kilgour Chapter No. 3, Telephone Pioneers of America.

In a mailed ballot election, F. L. Zeller, district commercial manager, was elected vice president and H. F. Muth, C. W. Ashing, Marie Dolan, J. A. Burns, E. R. Lotz and W. K. Van Horn were chosen members of the executive committee.

V V

Carl G. Howard Represents Stromberg-Carlson

Carl G. Howard has been appointed railroad sales representative of the Stromberg-Carlson Co., Rochester, N. Y., it was announced recently by

CARL G. HOWARD

Lloyd L. Spencer, vice president and general sales manager.

Mr. Howard brings to his new post as factory representative of the telephone and sound equipment manufacturing firm, a broad, intensive background in the engineering and sales phases of the railroad communications and signal equipment field.

A native of Newark, Ohio, he attended the Dodge Institute of Telegraphy, Valparaiso, Ind., and the Lewis Institute in Chicago, Ill. Mr. Howard holds membership in the Western Railway Club, Chicago, Ill., American Institute of Electrical Engineers, Western Society of Engineering, and the signal and communications section of the American Association of Railroads.

Mr. Howard will continue to make his headquarters in the Engineering Building, 205 Wacker Drive, Chicago, Ill.

V V

Effect Paper Economies

The paper shortage may require further curtailments, it was stated recently when the War Production Board said the paper situation does not look good. Telephone companies should not only continue their present conservation measures, but wherever possible should effect additional economies in paper usage, it was said.

V V

Rehire Couple

MR. AND MRS. J. N. TOTTEN, employes of the Attica (Iowa) Mutual Telephone Co. for the past 17 years, recently were rehired for the duration of the war.

V V

Installs New Switchboard

The Natoma (Kan.) Central Telephone Co., recently installed a newly-purchased switchboard at its Natoma exchange. Joe H. Griffin is manager of the company.

V V

OBITUARIES

W. FRANK ARMSTRONG, 63, assistant vice president in charge of personnel relations of the Cincinnati & Suburban Bell Telephone Co., Cincinnati, Ohio, died May 4 in his home at Pleasant Ridge, Ohio. He had suffered a heart

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MICHIGAN POLE & TIE CO.
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International Creosoting and Construction Co., Galveston, Texas.—Creosoted Southern Yellow Pine Poles. Plants: Beaumont and Texarkana, Texas.

T. M. Partridge Lumber Co., Minneapolis, Minn.—Northern White—Western Red Cedar Poles. Plain or butt-treated.

Pensacola Creosoting Company, Pensacola, Fla.—Creosoted Southern Pine. Poles of Superior Long Leaf Quality.

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HELP WANTED

WANTED: Combination plant man capable of maintaing both inside and outside common battery and magneto exchange. This is permanent employment with good wages. Should be able to start employment July 1. Give age and experience. Write Oneida Telephone Exchange, Drawer B, Oneida, Ill.

WANTED: Man and wife to operate switchboard, maintain and service lines for small exchange in northern Indiana. Exchange located in modern seven room home. Steady employment. Good wages for right couple. Write Boone Grove Telephone Co., Boone Grove, Ind.

WANTED: Lineman for telephone company operating approximately 2,500 stations in eastern Pennsylvania. Give full information as to age, experience, draft status, etc. Statement of availability necessary. Write Box 2152, c/o TELEPHONY.

WANTED—DISTRICT MANAGERS: A midwestern Class A telephone company has an opportunity for one or two enterprising men as district managers. These men must be hustlers, thoroughly versed in the plant, commercial and traffic functions of the telephone business and capable of supervising five to seven exchanges. Salary commensurate with ability and responsibility. State all qualifications and particulars in first letter. WMC regulations observed. Write Box No. 2157, c/o TELEPHONY.

HELP WANTED

HELP WANTED: Large telephone company operating in Kentucky and Tennessee has openings for plant superintendent, district manager and automatic central office equipment maintainer. Inquiries from qualified individuals solicited. State age, experience and draft status. Write Box No. 2163, c/o TELEPHONY.

WANTED: Competent man under 45 desiring peacetime job, who understands construction, switchboards and trouble shooting for a small group of exchanges in Wisconsin with under 2,000 subscribers, to work with small crew and supervise work and independently as needed. If interested, notify this office giving qualifications and experience. Write Box 2158, c/o TELEPHONY.

WANTED: Telephone Accountant—qualified to supervise all phases of telephone accounting for Class A companies. Give full information as to age, experience, draft status, etc. Attach small photograph. Write Telephone Services, Inc., 16th Floor, Lincoln Tower, Fort Wayne, Indiana.

WANTED: Combination plant man able to maintain both inside and outside plant of either common battery or magneto exchange. Opportunity for permanent employment and good wages. Give age, experience, draft status and availability. Write Oklahoma Telephone Co., Broken Arrow, Okla.

GOOD USED SWITCHBOARD CABLE

6 pair	19 gauge	NO RATING REQUIRED	21 pair	22 gauge
6 pair	22 gauge		41 pair	22 gauge
11 pair	22 gauge		51 pair	22 gauge
16 pair	22 gauge			

COMBINATION

6 pair	22 gauge	and	6 single	22 gauge
21 pair	22 gauge	and	11 single	22 gauge
21 pair	22 gauge	and	21 single	22 gauge
6 pair	19 gauge	and	16 pair	22 gauge
11 pair	19 gauge	and	11 pair	22 gauge
11 pair	19 gauge	and	21 pair	22 gauge

Some tinned and some tinned enameled conductors, some acetate insulation but mostly silk and cotton, slate braid over all. Miscellaneous lengths. A few other types also on hand.

BUCKEYE TELEPHONE and SUPPLY COMPANY

COLUMBUS 6, OHIO

attack April 1 and had been confined to his home since that time.

Mr. Armstrong joined the telephone company in 1898 as night operator. He also was the first stenographer of the concern, later becoming bookkeeper, collector and personnel representative in 1923. He served as assistant to the president for several years and became assistant vice president in 1943.

Mr. Armstrong was first secretary of the Telephone Employes' Benefit Committee and past president of Kilgour Chapter, Telephone Pioneers of America, also past vice president of the Independent Pioneer Telephone Association.

He leaves his widow; four sons, Capt. Frank W. Armstrong, Jr., believed to be on his way home from Australia; Lieut. Thomas R. Armstrong, member of the Signal Corps with the First Army in Berlin; Corp. Daniel F. Armstrong, who recently returned from the Pacific area, and Electrician's Mate 3/c William O'Connor Armstrong, in the Pacific; five daughters and 18 grandchildren.

* * *

FREDERIC LOUIS FISCHER, formerly general solicitor for the New England Telephone & Telegraph Co., Boston, Mass., died on April 27 following an operation.

* * *

CHARLES T. WRIGHT, 38, bookkeeper in the accounting department of the Missouri Telephone Co., Columbia, died May 1 at his home, following an illness of three months, when he had suffered acute heart attacks.

Surviving are his widow, a daughter and his mother.

FOR SALE

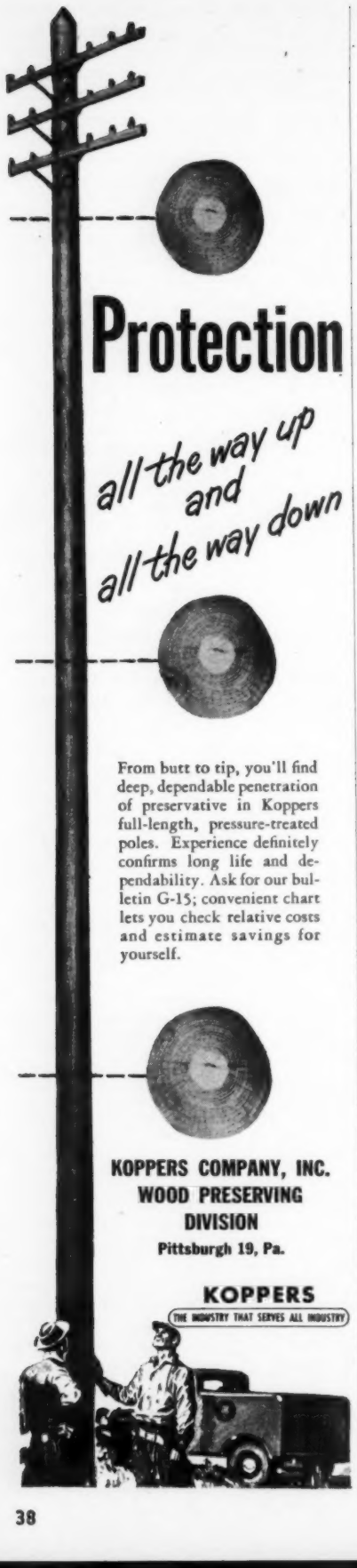
FOR SALE: Two-position Western Electric No. 551B PBX, each position equipped with line relays, 80 lines, 10 trunks, 15 cord circuits, with terminals, fuses. Wall type, complete with three-ampere charger and charge control unit. Also, equipped with a Western Electric eight-station crash alarm with remote control feature. This equipment, new in 1944, and used slightly over one year. Write Ellensburg Telephone Co., Ellensburg, Wash.

WANTED TO BUY

WANTED TO BUY: Telephone company in California. Will pay cash. Write Box No. 2149, c/o TELEPHONY.

WANTED TO BUY

Used Inter-communicating phones: Dictograph, Selectophone, Automatic Electric, Graybar, Tele-talk, and other popular makes. Los Angeles Telephone Signal Company, 1282 W. 2nd Street, Los Angeles 26, Cal.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and
all the way down
From butt to tip, you'll find deep, dependable penetration of preservative in Koppers full-length, pressure-treated poles. Experience definitely confirms long life and dependability. Ask for our bulletin G-15; convenient chart lets you check relative costs and estimate savings for yourself.
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Telephony

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